

AIR FORCE MATERIEL COMMAND

LEADING EDGE

ABCs of EAF

August 1999

Cover Stories

LEADING EDGE

http://afmc.wpafb.af.mil/publications/organizations/HQ-AFMC/PA/

Headquarters

Air Force Materiel Command
Wright-Patterson Air Force Base, Ohio

Commander and publisher
Gen. George T. Babitt

Director of Public Affairs
and editor-in-chief
Col. Donna Foster

Executive editor
Lt. Col. Kristen Sheppard

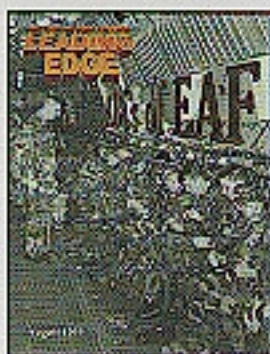
Managing editor
Mr. Corey L. Smith

Department of Defense
Thomas Jefferson Awards
First Place, Magazine Format, 1996
Second Place, 1998, 1997, 1996

Air Force Media Awards
First Place, Magazine Format,
1998, 1997, 1996, 1994, 1994
Second place, 1993, 1992



This funded Air Force magazine is an authorized publication published monthly for the people of the Air Force Materiel Command. Contents of LEADING EDGE are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense or the Department of the Air Force. The editorial content is edited, prepared and provided by the Public Affairs Office of Headquarters Air Force Materiel Command, 4375 Chateaufort Rd., Suite 5, Wright-Patterson AFB, Ohio 45433-5006. Photographs are official U.S. Air Force photos unless otherwise indicated. Distribution is 4:1. For submission and writers' guidelines, contact the editor at the above address or DSN 797-7602 or (937) 267-7602. Send e-mail to: hqafmc.pa.newsdesk@wpafb.af.mil



Cover created by
Mr. Curtis Alley
88 OS Multimedia Center

4-13 ABCs of EAF

The expeditionary nature of today's Air Force provides our country with rapid, flexible and precise global power and reach — anytime, anywhere around the globe. *Leading Edge* looks at how AFMC is supporting the transition to the new Expeditionary Aerospace Force.

5 EAF spelled out — understanding the acronyms

8 Expeditionary experts at Robins

A Rapid Area Distribution Support, or RADS, team from the 653rd CLSS at Robins AFB, Ga., deployed to Prince Sultan Air Base, Saudi Arabia, to tear down and rebuild what is believed to be the largest tent city in Air Force history.



Master Sgt. Anthony Sreedley

10 High operations tempo is affecting military working dogs



Senior Master Sgt. Danton Lankford

The high operations tempo in Southwest Asia and the Balkans affects some "furry" Air Force members — military working dogs. At left, author Tom Clancy visits with "Guljo," a working dog at Kelly AFB, Texas.

Anthrax Update

14 Silent, deadly and possible — fictional story of anthrax encounter

Mission Progress

16 Electric current finds aircraft flaws

18 F-15 experts hone helmet-mounted display system

Features

22 Visiting Vietnam — Medal of Honor recipient is not forgotten

23 National Atomic Museum celebrates 30th birthday

Departments

3 Mission briefs

20 News briefs

25 Focus on people

29 Awards

PRODUCT SUPPORT

Eglin employs environment friendly tanks

EGLIN AIR FORCE BASE, Fla. — The Vehicle Maintenance Flight from the 96th Transportation Squadron at Eglin AFB, Fla., recently began a new initiative that not

only helps save money, but is environment friendly as well.

The flight installed five tanks which can hold a total of 1,400 gallons of oil — oil used to maintain Eglin's

maintain Eglin's 1,520 military vehicles. Previously, 55-gallon drums were stored in a warehouse and moved into the maintenance area as the need arose.

Flight mechanics now use recycled motor oil in all vehicles and, in compliance with an executive order, buy the re-refined oil at a 37 percent cost savings.

"By installing the tanks, we've closed the loop," said Mr. John Cecil, service technician for the flight. "By being able to keep a larger quantity of oil on hand, we save in manpower, oil costs and meet environmental constraints."

Previously, it took up to 30 days to have the drums delivered. Then each drum was handled at least five

times, heightening the risk of a spill. Now, in the closed loop, an oil supplier fills the tanks in the maintenance flight and the turnaround is just seven days.

"Now that we have the tanks, we can bulk order the oil," Mr. Cecil said.

Last year, the base used more than 3,600 gallons of oil to keep its vehicles running. The new system means more than twice the amount of oil can be stored locally.

"This new process is saving more than \$3,000 a year plus untold man-hour savings," said Lt. Col. Jo Alfaro, 96th Transportation Squadron commander.

— Mr. Lois Walsh, AAF Public Affairs



Mr. Lois Walsh

Mr. John Cecil, service technician at Eglin AFB, checks new oil tank fuel levels.

DEPOT

Squadron helps B-2 in mission success

TINKER AIR FORCE BASE, Okla. — A 14-man team from the 654th Combat Logistics Support Squadron at Tinker AFB, Okla., recently arrived at Whiteman AFB, Mo., to learn more about low observable surface treatments for the B-2 Bomber and its missions over the Balkans.

A CLSS functions almost like an emergency team, or reserve unit, that can leave in a moment's notice to support maintenance and logistics problems for designated aircraft.

According to Staff Sgt. Darrell Ellison of the 654th CLSS, the team was originally scheduled to train at Whiteman later this summer to get hands-on experience with the B-2's unique technology. The squadron's accelerated visit allowed the regular crews of the 509th Maintenance Squadron to focus more on the B-2's readiness for combat, according to 2nd Lt. Dave Short of the 509th Maintenance Squadron.

"It works out well for both of our squadrons," Lt. Short said. "They get the hands-on training they wanted by

running through our phase maintenance and that, in turn, frees up some of our people to turn combat aircraft."

— Senior Airman Polly Gates, 509th Bomb Wing Public Affairs

Teamwork speeds F-16 problem resolution

ROBINS AIR FORCE BASE, Ga. — Three directorates (Avionics Management, Electronic Warfare Management, and Technology and Industrial Support) at Warner Robins Air Logistics Center, Robins AFB, Ga., recently collaborated to correct a radar detection problem in record time.

For years, the F-16 fighter had problems with its ALR-56M Superhet Controller, or SHC, a device that detects and identifies radar-related threats to the plane. While the problem was already under investigation, the deployment of F-16s in Yugoslavia presented an urgent need to find a solution.

Before Operation Allied Force, the SHC line replacement unit or LRU, was failing at a high rate causing a reliability problem on the plane. Capt. Gerry Falen, ALR-56M system engineer with the Warner Robins Avionics Manage-

ment Directorate, said the problem was due to water dripping onto the unit and causing power supply failure.

"We either had to get the water out of the bay or protect the LRU," Capt. Falen said.

Late last year, Mr. Tom Watts, depot engineer, and Mr. John Roberson, contractor, designed and attached a water shield made of aluminum to the LRU. WR-ALC's Technology and Industrial Support Directorate manufactured 30 prototypes of the shield in less than a month's time.

A squadron of F-16s at Shaw AFB, S.C., tested the modification over a six-month period. As the tests were under way at Shaw, the F-16s were deployed to Aviano Air Base, Italy, for Operation Allied Force, where the climate is very wet. It soon became apparent the modification was effective, because no failures were reported.

"The results were so good, U.S. Air Forces in Europe decided, 'Hey, we need these things on our jets,'" said Mr. Don Dixon, ALR-56M program manager. USAFE requested 100 additional water shields for the F-16s at Aviano.

— Mr. Hal McKencie, WR-ALC Public Affairs

A member of the 77th Security Forces Squadron at McClellan AFB, Calif., coordinates the defense of the "New Dinar" Air Base during Operation Northern Bear II. The full story is on page 24.



AFMC provides foundation for Expeditionary Aerospace Force

— Gen. George T. Babbitt
commander, Air Force Materiel Command

Today, the men and women of Air Force Materiel Command at home and abroad are working incredibly hard supporting our national interests. Operation Northern and Southern Watch in Iraq and ongoing operations in the Balkans are tough challenges. Our airmen are engaged in dangerous and complex missions.

We could not possibly mount operations of these magnitudes without the superb planning and preparation by our airmen, officers and civilians in our active, reserve and guard components.

There is no doubt the command, the Air Force, and indeed the nation, appreciate your vital efforts — whether you're supporting operations from your home base or abroad.

The expeditionary nature of today's Air Force provides our country with rapid, flexible and precise global power and reach — anytime, anywhere around the globe.

As the command responsible for researching, developing, testing, acquiring and maintaining Air Force weapons systems, AFMC is providing the material foundation for America's aerospace power. The aircraft flown, munitions dropped, spare parts used and space and C-4I systems employed in today's operations had their start on AFMC drawing boards or were acquired by the command for Air Force use.

Our expeditionary Air Force exploits the unique characteristics of aerospace power — speed, global range, precision, flexibility and space-based global awareness — to provide our national leaders the unmatched ability to rapidly respond across the spectrum of conflict.

AFMC's innovative research and development along with

our sustainment programs are essential to ensuring the United States continues to be a strong military and economic power. We're the technology experts the Air Force depends on to find unique solutions to problems with older as well as brand-new systems.

Our current military operations have again reinforced the importance of our expeditionary capabilities. Our planned Aerospace Expeditionary Force, or AEF, schedule uses 20 percent of our force to handle steady state contingency operations.

The recent operations in Kosovo, in addition to our steady state Northern and Southern Watch commitments, require a force-level commitment well above 20 percent. This surge in our operations tempo is higher than during either the Gulf or Vietnam wars.

The Air Force's expeditionary mission and tempo demand we modernize and restructure, so we can continue to provide our nation the rapid, precise, global capabilities needed to deter aggression and respond to any crisis that should arise.

I know this is a demanding and busy time for AFMC's people and units. I am extremely proud of the way our command has risen to these recent challenges. You have made sure the Air Force has the most dependable and technologically superior aircraft, munitions and support equipment in the world.

You keep our Air Force the world's best by ensuring it has unmatched capabilities for protecting our nation and freedom's cause. I encourage you to continue this superior work — your nation depends on it.

EAF spelled out

There's been a lot of talk about the Expeditionary Aerospace Force, or EAF, over the last few months, but less about the purpose and theory behind the EAF concept. In short, it is the Air Force's vision of how to organize, train and equip aerospace forces.

The EAF helps create a mindset and cultural state that embraces the unique characteristics of aerospace power.

There are several acronyms associated with EAF, with which everyone in the Air Force should be familiar.

EAF refers to the overall concept that will allow us to provide aerospace power rapidly and decisively anywhere, anytime.

The acronym AEF, or Aerospace Expeditionary Force, is a predetermined set of forces (aircraft, equipment, and personnel) which can be tailored to meet a theater commander's needs.

There will be a total of ten AEFs with two "on-the-line" and ready at any given time. The Guard and Air Force Reserves will be a part of several of these AEFs.

The ten AEFs will cover a 15-month cycle with each AEF on a 90-day vulnerability period. During this 90-day period, some units in particular AEFs will deploy to contingency operations, such as Northern or Southern Watch. Those units not deployed will be on call and ready for any situation should the need arise.

The next term, AEW, refers to Aerospace Expeditionary Wings. There are two AEWs — the 366th Wing at Mountain Home Air Force Base, Idaho, and the 4th Fighter Wing at Seymour Johnson AFB, N.C. The two wings will rotate "on-call" responsibilities and respond to crises as they occur throughout the world.

Another term is Expeditionary Combat Support, or ECS. This stands for exactly what it says, combat support for the AEFs. These individuals are from numerous career fields, including civil engineers, security forces, aerial porters and combat logistics support squadron members.

ECS taskings will be derived from existing unit type codes, meaning individuals could be deployed separately or as teams. Every attempt will be made to place support personnel in the same AEF as the unit's aircraft is assigned, but there are no guarantees.

What does this mean for all Air Force members?

On an individual basis, it means that we should have our personal affairs in order to include up-to-date Air Force forms, powers of attorney, family care plan, current identification card and a sound financial plan. When we are not in the vulnerability period, we have to provide and receive essential training for our reservists to ensure they are mission ready.

Keep in mind the Expeditionary Aerospace Force and all of its elements are in the evolutionary phase. Further changes are bound to follow.

— Col. Wayne R. Conway, 419th Fighter Wing Vice Commander, Hill AFB, Utah



Staff Sgt. Timothy Inger

Staff Sgt. Patrick Carter, aircraft electrician at Hill AFB, Utah, peers from a hole in the rib section of a C-130. All CLSS members are trained to do aircraft battle damage repair in support of real-world operations.

Real-world battle damage repair

AFMC units support Kosovo

Adapting to the Expeditionary Aerospace Force model, Air Force Materiel Command troops deployed to support Kosovo and conducted business as usual.

Aerospace Expeditionary Force teams from the 649th Combat Logistics Support Squadron at Hill AFB, Utah, deployed and met with teams from the 652nd CLSS from McClellan AFB, Calif., to support Kosovo operations.

"ABF teams from both bases deployed to Aviano Air Base, Italy and split into two main teams — one for F-16s and one for A-10s — to support the operation," said Master Sgt. Chuck Vigansky, Aircraft Battle Damage Repair superintendent. "The teams split and the A-10 team moved to a forward operating location. Then we back-filled the F-16 team so we would have a fully staffed repair team at Aviano."

The AEF team composition differs from the usual battle repair team makeup. The traditional Aircraft Battle Damage Repair, or ABDR, team consists of 15 technicians primarily responsible for one type of airframe — with one team deployed per two flying squadrons.

The AEF team consists of smaller teams with approximately eight technicians from each CLSS. Each team has specialized training for their respective airframes and joins with other CLSS squadrons' teams. The ABF teams from each deployed CLSS then combine to form a larger repair team. The AEF teams work together and are responsible for repair on all airframes within the AEF wing.

AEF teams were designed to deploy to smaller conflicts. If a conflict escalates, more CLSS AEF teams could be deployed as needed, or the teams currently deployed could be back-filled to make traditionally sized ABDR teams.

"ABDR training has not changed with the implementation

In preparation for being deployed, Staff Sgt. Patrick Carter practices self aid and buddy care on fellow workers during an exercise at Hill AFB, Utah.



Staff Sgt. Timothy Trager

of the AEF concept," said Sgt. Viganski. "Our mission is the same; we repair battle damaged aircraft with specialized repair techniques and get them back into combat as soon as possible."

The 649th CLSS repair teams train at the Base Operations Readiness Training Area at Hill. They train on many different types of aircraft under a variety of conditions such as snow, heat and nighttime operations. Aircraft deemed obsolete or beyond economical repair are placed in the area and used over and over to practice structural repairs.

Local exercises provide an opportunity for CLSS members to practice most aspects of their trade under simulated battle

conditions wearing the chemically and biologically protective ensemble.

"All CLSS people are trained in ABDR in addition to their regular job," said Staff Sgt. Patrick Carter, aircraft electrician, as he worked on a hole purposely put in the side of a C-130 training aircraft. "Once everyone commits to the idea that AEF is the way it's going to be, deployments will run smooth. We are doing the same thing we have always done, but we have a better idea when we will deploy."

When the teams are not working on battle damaged aircraft they perform heavy maintenance, phase inspections, flightline maintenance and manning assistance as needed to support the AEF wing.

"I see the need for all ABDR training programs to help

maintainers become familiar with other airframes in addition to the primary airframe they're responsible for," said Sgt. Viganski. "Team members will likely be responsible for repairs outside the scope of their primary weapons system while deployed. Overall, our people have responded positively to the AEF concept. AEF is here, and we will be selected for deployments in our designated window, that will allow everyone to schedule their lives around deployments."

— Staff Sgt. Timothy Trager, OO-ALC Public Affairs



Staff Sgt. Timothy Trager

The Base Operations Readiness Training Area, or BORTA, at Hill AFB, Utah, is lit for an evening exercise.

Family members to benefit from EAF

"This is a family Air Force," said Gen. Michael E. Ryan, Air Force Chief of Staff, when he visited Shaw Air Force Base, S.C., in May.

Gen. Ryan talked about the importance of taking care of military spouses left behind during deployments, and he detailed the Expeditionary Aerospace Force's role and how it affects family-members.

"EAF is a mind set and it's what we are. It allows us to focus on rapidly deploying, but it also includes those kinds of things that don't go forward, like nuclear and space forces, depots and other 'stay behind' forces," he said.

According to Gen. Ryan, keeping the Air Force on a predictable schedule will in turn help families do the same.

The EAF concept is meant to bring predictability and stability into the lives of Air Force people and is intended to make life easier on them

and their families.

"Almost 75 percent of our folks in the United States Air Force are married. Our most experienced people are the same people who take the brunt of the rotations. Our five-and-seven-level people are those who have been in our Air Force for more than one term — almost all have families," the general said. "If we are going to ask service members to deploy forward to fulfill the demands our nation puts on them, then we need to take care of their families in a way that gives them confidence that their families have the support mechanisms should they need help."

Gen. Ryan cited the capabilities of family support centers and different squadron organizations that provide assistance to families during deployments.

Available services and support for families should increase with the implementation of EAF, he said.

"We ask a lot of them (military spouses). We ask them to be separated from the service member and to take over once-shared burdens. We ask them to move and uproot their families, to change schools and lose their jobs in some cases. That's a level of commitment from the family, particularly spouses, that can't be underrated," Gen. Ryan said.

As proud as all Air Force members are of their families, the general said those left behind should feel the same amount of honor and dignity for what those deployed are accomplishing every day.

"Military spouses ought to be very, very proud. They (the airmen) are doing a great job in the engagements they're in today," Gen. Ryan said.

— Ms. Lisa Nowaratzky, Air Force Print News

EAF crucial to meeting national objectives

The Expeditionary Aerospace Force is a concept developed to deal with the new realities our Air Force faces. It is part of our evolution toward a fully integrated aerospace force.

Our Air Force chief of staff, Gen. Michael E. Ryan, has described the concept as a "lighter, leaner force, prepared for expeditionary operations and tailored to (commander in chief) requirements across the spectrum of crises, which must be able to deploy rapidly to execute the CINC's mission."

In addition to this mission-oriented focus, our people will see other benefits. The most tangible will be the stability and predictability that will result as units deploy on scheduled rotation cycles.

The bottom line is the EAF is an evolution to a more effective way of applying aerospace power to achieve national objectives while addressing the issues of operations tempo and personnel tempo we face today and will face in the future.

Practicing the theory

There is an intensive effort under way to determine the most effective and efficient operating procedures and technologies for expeditionary forces. An Air Force battle laboratory has been established and annual experiments are being conducted to see how well we're doing and where we need to get better.

The first exercise was the Expeditionary Force Experiment 1998, or EFX '98. This experiment combined live flying, simulation and leading edge technology. It provided an actual operational environment that identified specific concepts, capabilities and systems that are needed now.

Preparations are well under way for Joint Expeditionary Force Experiment 1999, scheduled for August. This year's experiment will add more space-based resources and joint participation. Early planning is under way for the year 2000 experiment.

Much information is also coming from deployed expeditionary units. A

crucial aspect of the EAF is the need to continue to make the transition from a threat-based Cold war garrison force to a capabilities-based force with a global orientation. This means creating, again in Gen. Ryan's words, "an expeditionary mindset."

International cooperation

Critical to this mindset is not only training and equipment but an understanding that we will deploy and operate with other allied forces — most likely out of their bases — which will require the airmen of the 21st century to be not only technically competent but also internationally oriented.

Some examples of recent operations that involved multinational forces include: humanitarian relief after Hurricane Mitch in Central America; Operation Northern Watch in Turkey with coalition partners United Kingdom and Turkey; Operation Southern Watch including units from United Kingdom, France and Saudi Arabia; and, of course, the Balkans, Operation Allied Force.

Given that we are moving rapidly toward the EAF concept, it is the duty of every Air Force member to become more knowledgeable in the international arena, specifically of foreign militaries and how they operate, if the EAF concept is going to be successful.

Putting skills to work

One way the Air Force is attacking this issue is by developing a cadre of officers with international experience and foreign language proficiency, the Air Force Foreign Area Officer Program.

An individual's expertise is documented by the Defense Language Proficiency Test, an area studies graduate degree and their in-country experience. Program details and how to apply are available on the Web at: <http://www.hq.af.mil/af/saff/ia/afao/fao>.

This program will ensure officers are in place to provide Air Force leadership

with the needed expertise to operate expeditionary forces worldwide.

Closer to home, for those individuals stationed at Wright-Patterson Air Force Base, Ohio, there is the unique opportunity to work, meet and socialize with a large number of allied officers and their families.

Foreign liaison officers and NCOs on

Wright-Patterson are assigned to Air Force Materiel Command headquarters, Aeronautical Systems Center, National Air Intelligence Center and Air Force Security Assistance Center.

At AFSAC alone, foreign liaison officers from 25 countries work with us on a daily basis. During any given week, moreover, 15-20 AFSAC

employees are on temporary duty around the world working directly with foreign militaries.

Common Interests

Both the foreign liaison officers stationed at AFSAC and the AFSAC people working with them share a single focus: finding better ways to meet the logistics needs of our allies.

Achieving this objective requires an in-depth familiarity with their operational concepts, budget processes and cultures. Cross-cultural teamwork is key to our success.

AFSAC has crucial insight into how our allies' militaries work and how our Air Force supports them. We're, in this sense, a part of the international aspect of the EAF.

All Air Force people play a role in the new expeditionary organization. To be ready, all Air Force members need to know about the international environment and how to apply aerospace power in order to meet our national objectives, take care of our people and support our allies.

— Brig. Gen. Antonio J. Ramos, AFSAC Commander



Brig. Gen. Antonio J. Ramos

Expeditionary savvy from Robins

Usually the terms "high ops tempos," "Air Expeditionary Forces" and "deployments," are not thought to be synonymous with air logistics centers, but they should be — especially at Warner Robins Air Logistics Center, Robins Air Force Base, Ga.

Many Robins tenant units are known for routinely deploying to contingencies throughout the world. But, a number of Robins organizations also deploy people on a regular basis and exercise an important expeditionary role.

One unit, the 653rd Combat Logistics Support Squadron, or CLSS, recently deployed to Royal Air Force Lakenheath, United Kingdom, to support the 48th Fighter Wing.

At Lakenheath, the equipment maintenance squadron usually works on three aircraft at a time — what is called the phase dock inspection program. But while the CLSS team from Robins was there, they completed seven to eight aircraft during phase dock inspections.

In 82 days at Lakenheath, the team completed 62 aircraft, said Senior Master Sgt. Edward Wilder, deployed team chief.

"This outstanding effort allowed the aircraft to get back to the field faster," he said, explaining that these aircraft were flying in NATO operations against Serbia.

Another CLSS team, conducted a \$5 million effort for Kosovo refugees in April.

Originally, CLSS deployed a 23-member Rapid Area Distribution Support, or RADS, team to Prince Sultan Air Base in Saudi Arabia, to tear down and reconstitute what is believed to be the largest tent city in Air Force history.

However, the team's mission immediately changed upon arrival. Instead of breaking down and packing the tents to go to Thumrait, Oman, real world contingencies dictated that the cargo be sent to war-torn Kosovo refugees.

The RADS team joined forces with a 31-member civil engineer base team from Holloman AFB, N.M., to complete the mission.

The team packed approximately 700 temper tents and related support equipment weighing more than 368 tons, said Master Sgt. Anthony Steedly, RADS team chief.

"We received outstanding support and were augmented by the 363rd Air Expeditionary Wing. In addition to the temper tents, we assembled, inventoried and packed 3,781 cots, 6,290 blankets, 1,645 pillows, 4,040 sheets and 300 sponges."

Another Robins unit, the 78th Security Forces Squadron, has personnel deployed regularly in support of numerous worldwide operations. Currently, approximately 40 security forces personnel

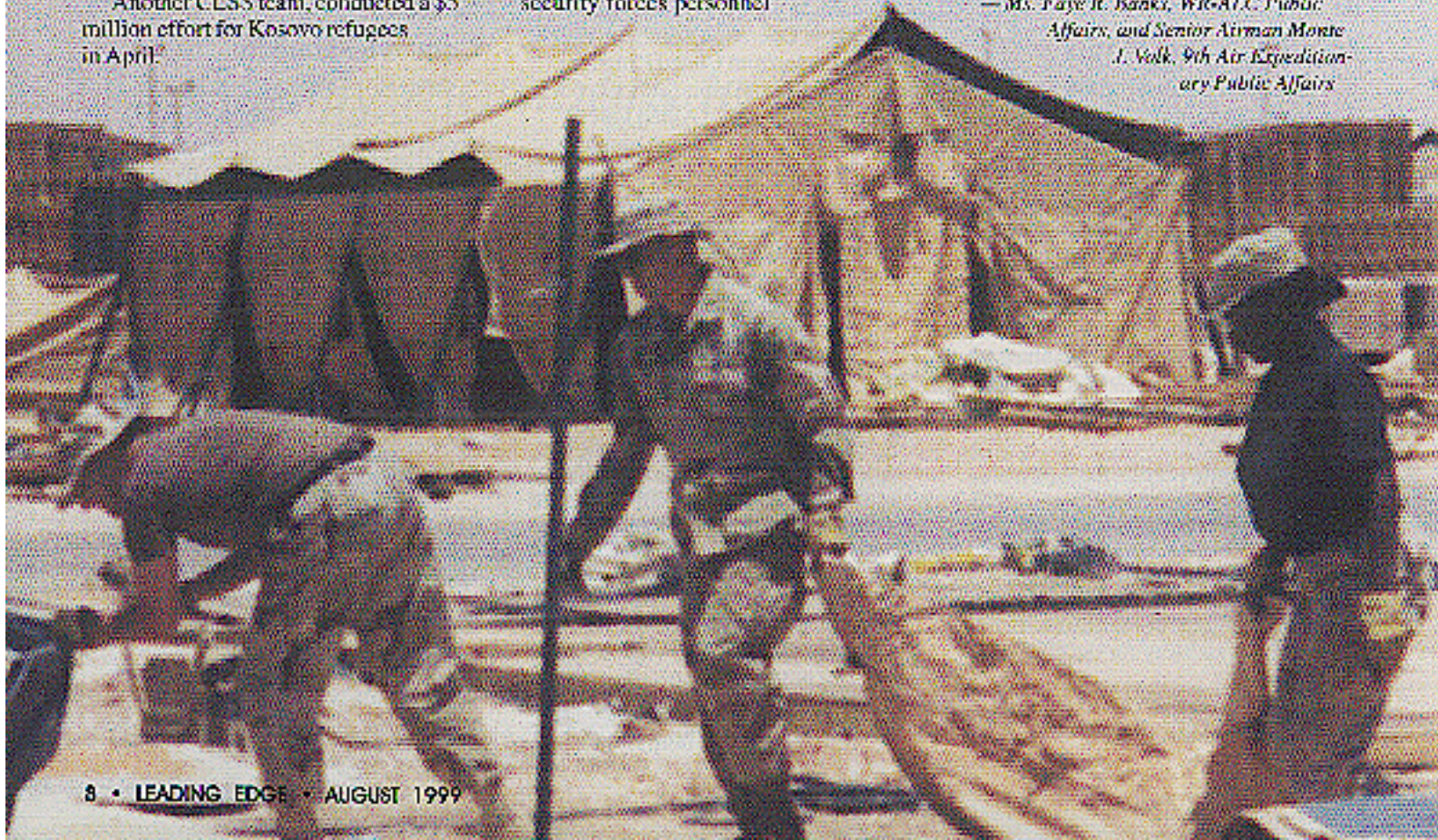
are working at or near Prince Sultan AB in support of Operation Southern Watch. They work an average of 14-16 hour days in temperatures in the middle 100s in the desert, said Master Sgt. John Wisdom, who is deployed to Prince Sultan.

Teamwork was again exemplified at Ali Al Salem AB, when a 40-member Robins civil engineer Prince Base Engineering Emergency Force team deployed to complete a \$1.3 million construction project. The team assisted the 9th Air Expeditionary Group by upgrading and updating facilities for forward-deployed troops.

"We get real-world training on our wartime tasks and the type of equipment we would use," said Capt. Kyle Brown, Prime BEEF team officer in charge. "We've received a lot of support from various agencies and the commanders. They realize despite the inconveniences now, that better working and living conditions will result."

Over the past year, these and other organizations at Robins have deployed a total of 862 short tons of cargo and 2,005 personnel to a wide range of locations throughout the world with the largest single portion — 215 short tons of cargo and 730 personnel — to support Operation Allied Force.

— Ms. Faye R. Banks, WR-AIC Public Affairs, and Senior Airman Monte J. Volk, 9th Air Expeditionary Public Affairs



Off they go...

MPRC experts expedite people

Getting Air Force Materiel Command's own people moving around the world to where their military might or expertise is needed is a constant process orchestrated from Headquarters AFMC's Manpower and Personnel Readiness Center.

The MPRC team, co-located with the AFMC Command Post at Wright-Patterson Air Force Base, Ohio, coordinates the human resources needed to cover a wide variety of global taskings.

"Our function is to receive and validate deployment requirements for supported commands as well as sustainment of our own CONUS bases," said Ms. Beverly Howdieshell, AFMC chief of readiness.

Deployment taskings come in to the MPRC from many avenues including the Air Staff, the Air Force Personnel Center at Randolph AFB, Texas, and directly from other major commands needing help.

Augmenting USAF

AFMC recently provided about 400 people to support U.S. Air Forces in Europe — the Air Force component responsible for deploying Air Force assets supporting the air war to halt ethnic cleansing in Kosovo.

Working with MPRC, functional managers among the headquarters staff find the people they need through links throughout the command's total force of active duty, civilians, Air National Guard, Air Force Reserve and contract employees.

With more civilians working in AFMC than in any other major command, its support to contingencies and war-time operations is based more on the type of mission rather than on military population. Ms. Howdieshell said.

One of the more challenging aspects of juggling deploying assets, Ms.

Howdieshell said, is accounting for contractors affiliated with a deploying AFMC unit.

"A lot of the negotiations go on outside of our shop. Contractors' personnel info is not in a data base anywhere for us to tap," she said. "So it's all 'fist-finger' in a system that doesn't have anything to bump up against to validate."

As a specialized branch available to the AFMC command post's battle staff director, MPRC provides the people, while AFMC's Plans and Programs Directorate combines the human assets with the equipment heading in the same direction.

Functional managers in specialized areas such as munitions are also a big part of making certain all resources are part and parcel within Time-Phase Force Deployment Lists.

Surging to keep up

As many shops around the Air Force did, the MPRC went into 24-hour, seven-days-a-week mode, Ms. Howdieshell said.

"What happens is you just crank up the speed," she said. "Nothing really

stops for us. Our normal day-to-day business continues at the same time we surge into 24 hour ops and have to speed up the deployment process."

Varied missions

Besides Kosovo taskings, ongoing operations included various Joint Chiefs of Staff exercises and Palace Tenure requirements rotating in and out of the Persian Gulf and European theaters.

"Sometimes we task by base, sometimes by unit, sometimes by individual. We follow through until those deployed return home safely," said Ms. Howdieshell.

Although the additional surge into the Balkan theater of operations has relaxed, the continued deployment of AFMC people and resources is necessary for sustainment of operations for Kosovo.

"There's still a lot of things going on there," she said. "Although we're not bombing any more there's still peace-keeping that requires people to be deployed."

— Tech. Sgt. Darrell Lewis, AFMC Public Affairs



Ms. Sue Sapp

Members of the 5th Combat Communication Group, Robins AFB, Ga., board a C-17 Globemaster III for the long flight to Europe. They are tasked with setting up communications support for a deployed F-16 squadron.

High 'opstempo' means their dogs are barking!

There are six dogs and six handlers at Kelly Air Force Base, Texas, but most of the time one of those teams is deployed to Southwest Asia.

High 'opstempo' affects the workload of deployed and state-side Air Force members, and military working dogs are influenced much the same.

According to Maj. Doug Miller, commander of the 76th Security Forces Squadron, the remaining five teams have the responsibility of patrolling Kelly, participating in the Department of Defense counter drug program and participating in the dignitary protection program.

Maj. Miller said Kelly dogs are primarily explosive and drug detector dogs, and both types are trained for patrol. An explosive dog team must find 95 percent of the explosives hidden in a certain location to become certified. Drug dogs must find 90 percent of hidden drugs.

"On any given day, we have two dogs who are on patrol with their handlers during the day shift, and one at night," Maj. Miller said. "The mere presence of a dog is a deterrence to criminal activity."

Drug dogs and explosive dogs routinely work Kelly entry and exit

checkpoints.

"Our gate guards find significantly more drugs at entry and exit points to Kelly than the dogs do in living quarters and common areas," he said. He attributes the low drug finds in living quarters and common areas to the Air Force's random drug urine analysis testing program.

"Dogs are a valuable resource for the Air Force, because of their keen sense of smell," Maj. Miller said.

Recent tests have shown that dogs are able to detect scents lower than one part per billion. One part per billion has been described as filling both the World Trade Towers in New York City with coffee and pouring in one cup of sugar - one billion parts of coffee and one part of sugar.

"Because of our high operational tempo, we try to rotate a dog and handler team to Southwest Asia every four months, and we also provide bomb sniffing dogs to protect dignitaries and for use with federal law enforcement agencies along the Mexico and U.S. border," Maj. Miller said.

Maj. Miller said a team just returned from the Mexico and U.S. border where it worked for four months at several ports of entry into the United States.

"Through a request from U.S. Customs that went to Air Force Material Command through the Department of Defense's Counter Drug manager located at HQ Air Force Security Forces Center at



Senior Master Sgt. Denton Lankford

Senior Airman Jason Winge and "Gulyo" perform guard duty at Kelly AFB, Texas.

Lackland AFB, we were tasked with providing a drug dog team for use in the counter drug program along the border," Maj. Miller said. "Our team made some significant drug finds. In fact, U.S. Customs requested that we extend the team for another month."

He said one Kelly bomb dog team was dispatched to work the entire trial of Terry Nichols, a suspect in the Oklahoma City bombing federal building.

Maj. Miller, once a two-year enlisted dog handler at Shepard AFB, Texas, loves dogs, and currently has three for pets.

"I grew up with dogs and loved them all my life, so when they asked for volunteers for handlers in 1978, I volunteered," he said. "Although you work long hours, the missions are very rewarding."

— Senior Master Sgt. Denton Lankford, SA-ALC Public Affairs



Senior Master Sgt. Denton Lankford

Handler Staff Sgt. Bill Carl and "Kelly" were certified for bomb detection and are deploying to Southwest Asia for a 120 day rotation.

It's A Dog's Life — *A day in the life of a military working dog*

By GULYO, 76th Security Forces Squadron

It's almost 0500 and I'm ready to go. He'll be here promptly at 0530, as my partner always is. I didn't get much sleep last night, because the dogs next door kept me up most of the night barking.

We make a good team, I'm told. We normally start our workday at 0530 when Senior Airman Jason Winge arrives and turns me out to exercise while he hoses out my kennel and fills my water bowl. He really takes good care of me, but I don't dare tell him or he might get a big head.

I'm also told that we look good together. He's always saying, "Gulyo is such a good looking dog!" I don't want to sound vain, but he's not bad either — as far as humans go. I try to make sure he's squared away all through the day, but sometimes it's not easy — he perspires a lot in this Texas heat and humidity.

So after I exercise and he grooms me, we're off to guard mount for our morning inspection and assignment for the day.

Today we'll be patrolling and doing random drug searches at the entry and exit points to the base. That's where I really make my partner look good. It's why we're called military working dogs — we do the work and the handlers get the glory. By the way, who ever heard of a military working handler?

I like to ride in the car; we normally put about 200 miles on it in an average week. It's nice and cool, and I like to look out the window.

I'm the only German Shepherd military working dog at Kelly Air Force Base, Texas. The others are all Belgian Malinois. Actually, I was born in Czechoslovakia and came to school here in the United States after joining the Air Force. Most of the other dogs in our kennel are also from Europe.

I graduated from the 'Dog School,' the 341st Training Squadron, at Lackland AFB after an 80-day course and was assigned to Kelly. During our first four weeks we trained as patrol dogs, then we either certified as a drug detector or an explosive detector. I'm a drug detector dog.

I like the work even though the days are long. I like to travel, and over the past year, I've done a lot of that. In fact, Airman Winge and I have been used in joint counter drug operations with U.S. Customs at ports of entry into the United States.

After working all day, my partner takes me back to the kennel where I get to eat. We get fed once a day usually two hours after we finish working.

I enjoy coming back to the kennel and visiting the other dogs. Pasja, the old man around here, rules the roost. He says he is 10 years old, but he doesn't look a day over six. What he says goes around here. Our trainer, Senior Airman Ayra Roach, is really attached to Pasja.

Then there's Staff Sgt. Bill Carl whose partner is Kelly. Kelly and Carl are on their way to Southwest Asia for a rotation. Kelly just got back from there, and because of the sun her hair is bleached blonde. She really looks good.

Another of my kennel buddies is Cindy whose partner is Senior Airman Mike Douglas. I really like Cindy because she is quiet and has a good disposition — unlike Pasja.



Senior Master Sgt. Denton Lankford

Three-year-old Gulyo is a military working dog from the 76th Security Forces Squadron at Kelly AFB, Texas.

Senior Airman Greg Wasson is partnered up with Rex who is also a real mellow buddy of mine. They get along well and also "look good together."

After I eat at around 1600 to 1700, my partner grooms me real well and then goes home. One thing I really like about him is that even on his days off he comes in and we play.

Speaking of playing, we have this reward thing that was started in school. We each get a choice of a reward (something we like to play with or eat). I like a tightly folded terry cloth towel. Actually, I think Airman Winge likes it more than me. But we both like playing with it. That's fun, so I really work hard for him.

We are well taken care of, and I remember seeing a sign at the Dog School that said "The Best Kept Dogs In the World." The Army Veterinary Corps at the Dog School routinely checks us and makes sure we are in good health always.

I don't have anything to complain about. If you ask, I'll be quick to tell you, "It's a dog's life."

That's a wrap!

AFMC studies Kosovo lessons learned

Operation Allied Force provided Air Force Materiel Command's first opportunity to adapt to the Air Force's new vision of how to organize, train and equip aerospace forces — the Expeditionary Aerospace Force.

"Operation Noble Anvil and Operation Allied Force, or OAF, gave us an opportunity to test some of the basic concepts of EAF logistically," said Col. Gary T. McCoy, deputy director of Logistics. "We were able to quickly ramp up for deployment, which we'll need to do in an EAF scenario. We tested our reach-back capability, quickly supplying the customers' requirements to enhance or sustain their operations."

Although EAF and AEF has not officially been implemented, it is on schedule despite the Kosovo operation.

"We are pressing right on," said Lt. Col. Marsha Kwolek, chief of the command's operations plan team. "It may be painful for a few months, but we are still looking at October 1 for the initial phase."

Col. Kwolek said if EAF had been in place, the sourcing process would have gone smoother during the Kosovo operation.

"There would have been more stability," she said. "We kicked off in a crisis mode, as opposed to having a major theater war plan on the shelf."

Surging to meet demand

During Kosovo operations, AFMC's air logistics centers performed expeditionary operations at a new level — surge operations. The depots began selectively surging certain repair areas weeks before the conflict started, ensuring deployed units would have the resources they needed.

"Our number one priority was to support the war fighter, at the same time continuing support of units not directly involved in the conflict," Col. McCoy said. "We succeeded in providing a level of support where non-deployed units were able to continue performing their peacetime missions while supporting the war-time effort."

As the Command transitions from surge operations back to a steady-state AEF schedule, AFMC will need to restore equipment and people to readiness levels and conditions, said Col. Kwolek.

Gen. George T. Babbitt, AFMC commander, has provided guidance to the command's air logistics centers to continue surging operations through the end of the fiscal year.

"The continued surge efforts will allow us to ramp up significantly," Col. McCoy said. "These efforts ensure we can support reconstitution and recovery of forces, reduce backorders to the lowest possible level, and reduce the bow wave."

On June 20, 1999, following an eleven week campaign, Operation Allied Force was officially terminated. During the final week of June, deployed AFMC troops began returning to their stations, and the Department of Defense authorized the return of more than 600 U.S. aircraft to their home stations.

Lessons learned

Gen. Michael E. Ryan, Air Force chief of staff, has tasked AFMC and the other major commands to compile lessons learned to be applied to force structure, modernization and operational decisions. He also tasked the commands to assess the impacts of OAF on our force and develop a plan to reconstitute and get back on track with EAF implementation.

AFMC officials attended the Allied Force "Quick Look"

conference in Washington D.C., July 7-9, to capture the major commands' most critical concerns regarding this successful operation. During the conference, AFMC was given accolades for acquisition, sustainment and science and technology efforts, said Col. Mark S. Borkowski, Programs Division chief.

Specific details

AFMC presented four lessons learned during the conference — from the perspective that its number one job was to support the warfighter, without allowing non-deployed units to suffer.

Conflict Revisited

1. Laboratory investments and Combat Mission Needs statements, or C-MNS, do provide real-world combat capability.

2. Precision guided missile demand was higher in this conflict than planned.

3. Command, control and communication, or C³, was effective but was significantly labor intensive.

4. Depots surging and fast transportation was key to spare parts support.

The focus was on spare parts, accelerated program depot maintenance aircraft, munitions support, Combat Mission Needs Statement, or C-MNS, and deployed Combat Logistics Support Squadrons and Aircraft Battle Damage Repair Teams. The lessons were based on experiences and data collected from all of AFMC's centers and synthesized into four broad elements.

Number one

The first lesson learned was that laboratory investments and combat mission needs statements, or C-MNS, provide real-world combat capability. The C-MNS system quickly provided capability to the warfighters, but it needs discipline and proper funding.

"Long-term laboratory investments paid off by providing unique combat capabilities," said Col. James R. Heald, vice commander of Air Force Research Laboratory. "A few examples of these investments paying off are sensors, night vision human factors and laser eye protection being employed during the operation. It is important that science and technology investments are supported to maintain technical supremacy."

Number two

The second lesson was that the demand for Precision Guided Munitions was higher than expected. PGMs accounted for 34 percent of munitions in Operation Allied Force, compared to only nine percent in Desert Storm.

Because munitions were used at higher rates than projected, inventory levels may need to be replenished. In addition, the more extensive use of PGMs may require updates to their designs to provide more effective capability in challenging environments. Reconstitution planning includes special consideration for munitions requirements.

Number three

The third lesson was that Command Control Communications capability was effective, but required significant labor intensive work-arounds. An example is that updated flying hour and sortie rates had to be obtained by telephone and telefax.

A recommended course adjustment for Command Control Communications is to provide improved capability, including more extensive capability for logistics reachback over classified systems.

Number four

The final lesson was that depot surging and fast transportation is the key to spares support, and was the right thing to do. A recommended course adjustment is that depot surge process must be formalized.

The "Quick Look" conference was the first of a three-part effort to garner lessons learned during Operation Allied Force. According to Gen. Lester Lyles, Air Force vice chief of staff, in a message to commanders of the major commands in June, "We must capture the Allied Force planning and execution lessons learned in order to best evaluate their full spectrum applicability and determine required Air Force future course adjustments."

The lessons from "Quick Look" will be sent to the Joint Staff by the end of July for inclusion in an overall Department of Defense report resulting from similar, initial assessments by all the armed services.

Part two of the effort, due in September, is development of an Air Force initial report, a top-level perspective paper on lessons learned covering all the services' core competencies. The final task is the creation of a detailed final report due in the summer of 2000 that will focus on considerations and recommendations to shape the future of the Air Force.

In addition to what was learned at the "Quick Look" conference, AFMC will host a "hot wash" meeting to look in more detail at AFMC's role in support of the Kosovo operation. The focus of the hot wash will be on lessons learned, including a more extensive review of the detailed lessons learned from each center, and on what actions can improve our support of future operations.

"Operation Allied Force is a clear indication of what great teamwork, partnership and commitment to excellence can do," Col. McCoy said. "I'm very proud of AFMC's role, it was one of our finest hours."

— Ms. Libby VanHook, AFMC Public Affairs



Five E-3 Sentry aircraft from Tinker AFB, Okla. were deployed to Gellenkirchen Air Base, Germany, in support of Kosovo operations. They are part of the 221 CONUS-based aircraft returning home.

Silent, deadly and possible...

... the C-141 aircraft had just been off-loaded, and the Air Transportable Hospital lay in the many crates to be assembled over the next 48 hours. The 60 medics were more than exhausted after the long flight over the Pacific, and the 112 degree heat was taking its toll.

The only glitch in the off-loading was a CO2 extinguisher discharging within the aircraft as the medics were deplaning. The safety valve was bumped open, or at least the incident report indicated it was the apparent cause for the cabin to have filled with a fine, fog-like mist.

Throughout the next few days, the medics worked together and assembled the transportable hospital. There were the usual cuts and sore backs, and at least 10 folks complained in the morning of

coming down with the "flu."

Many were developing a cough, fever, sore muscles, headaches, chest pain and just feeling extremely tired. Poor Col. Eek was being accused of spreading his virus throughout the airplane. He had coughed throughout most of the flight.

By the time the third day had ended, 56 of the medics

were sick. Half were becoming critically ill with difficulty breath-

ing, delirium, swollen necks, extreme chest pain, developing a cyanotic bluish tinge and extreme fevers.

It was believed an outbreak of meningitis was occurring because of the development of bleeding and total disorientation. The disease just sucked the air from their lungs, and their hollow lifeless eyes failed to respond to the limited treatment provided by the

four remaining medics.

Although it was of little comfort, the end would come soon for the majority, with their bodies overcome by infection and shock, their blood pressure plummeting to zero and death the inevitable result.

Autopsy reports would later indicate aerosolized anthrax was the cause of death. Anthrax spores were recovered from the spent CO2 extinguisher. No extremist group claimed responsibility for the death of the 56 medics sent to conduct the humanitarian relief mission.



Could it happen? **YES**

Can we prevent the deaths from happening? **YES**

Will the anthrax vaccine go a long way in preventing the deaths from occurring? **YES**

Despite misleading and inaccurate information widely appearing in the media and throughout the Internet, the anthrax vaccine is safe and effective. It must be stressed that the disease kills and not the vaccine. Anthrax is considered to be one of the biggest threats facing our troops at this time.

The Chairman of the Joint Chiefs of Staff has validated that anthrax is the greatest biological warfare threat to the U.S. forces at the present time.

In a recent letter on anthrax from Gen. Michael E. Ryan, chief of staff of the Air Force, he describes the vaccine as necessary to assure "our ability to perform the expeditionary aerospace force mission." He further stated "the threat of anthrax is too lethal, the loss of life is too real and the risk of mission failure is too high for us to do anything other than give our airmen the best protection available."

— Col. Cynthia A. Smith, AFMC Biomedical Sciences Division

Vying for vaccinations

In April, AFMC's Command Chief Master Sgt. Marc Mazza received his first anthrax vaccination injection in a series of six.

He was among other senior leaders being vaccinated to show their support of the vaccine and the inoculation of all Air Force members.

"Having leadership step forward is important," Chief Mazza said. "Getting this shot is part of readiness and force protection. We have to protect ourselves so we are ready to go where needed, when needed."



Chief Mazza

Everything you've always wanted to know about the anthrax vaccine

(... but were afraid to ask)



The anthrax vaccination is given in a six injection series.

Once primarily the domain of science fiction, biological warfare agents pose a constant risk to U. S. forces. DOD's vaccination program combats the anthrax threat.

With almost a million shots given as of July 1999, the anthrax immunization is proving to be one of the safest vaccination programs on record, said Dr. Sue Bailey, Air Force assistant secretary of defense for health affairs.

The following are frequently asked questions and answers taken from the website, <http://www.defenselink.mil>, and reviewed and updated by Air Force Materiel Command Biomedical Sciences Division.

The "Top 10 List" of questions are:

1. Why are Service members getting this vaccine?

Anthrax is a lethal disease that can be easily made into a weapon to be used against deployed personnel. Vaccination before exposure is a critical part of the protection against this weapon.

2. Is the vaccine all that is needed to protect against inhalation anthrax?

Being fully vaccinated greatly increases the chances of surviving an exposure to anthrax. Chances are further improved by other measures, especially the proper use of the protective masks.

3. Is this an experimental vaccine?

No, the anthrax vaccine has been approved by the FDA since 1970. Michigan Biologic Products Institute (now the Biopart Corporation) licensed the vaccine (No. 99) and is the only manufacturer.

4. Is this vaccine safe?

Beginning in 1970 and continuing through today, the anthrax vaccine has been routinely administered to all professionals who may come in contact with anthrax spores occupationally. No reports of serious adverse effects have been received by the manufacturer.

5. Is there anyone who should not receive the vaccine?

The anthrax vaccine should be administered only to healthy men and women from 18 to 65 years of age because investigations to date have been conducted exclusively in that population.

6. What about pregnancy?

Anthrax vaccine, like other vaccines in the U.S., is classified as "Pregnancy Category C," which means that animal reproduction studies have not been conducted with anthrax vaccine. Therefore, prudent medical practice dictates that all vaccinations, including anthrax, should be routinely deferred during pregnancy unless clearly needed.

7. What other medical conditions could affect the use of this vaccine?

If a person has an active infection or is taking certain prescription medications, a decision to give the vaccine will be made on a case by case basis.

8. The anthrax vaccine was administered to personnel deployed in the Gulf War. Has the anthrax vaccine been linked to illnesses among Gulf War veterans?

No. Several national scientific groups, including the National Academy of Sciences, have addressed this issue and have found no evidence to link the anthrax vaccine with illnesses among Gulf War veterans.

9. Does the vaccine cause sterility?

No. The vaccination has been routinely used for the past 28 years and has not been associated with sterility. There is ample evidence that it does not cause any harm or sterility.

10. What are the side effects?

As with other vaccinations, pain may occur at the site of injection. Temporary side effects (sore arm, redness, and slight swelling) may occur.

The vaccine has been in use since 1970 with no known long-term side effects.

More information is available at the following websites:

<http://www.anthrax.osd.mil>

<http://www.defenselink.mil>

<http://www.cdc.gov>

— Col. Cynthia A. Smith, AFMC Biomedical Sciences Division

Anthrax found in Aral Sea

U.S. scientists have found live spores of the deadly anthrax bacteria in a pit on an Aral Sea island, where the biological weapon was supposed to have been buried safely more than a decade ago. The New York Times reported June 2.

The newspaper described the Central Asia island where the pit is located, Vozrozhdeniye or Renaissance Island, as "the world's largest anthrax burial ground."

Hundreds of tons of anthrax bacteria, which were developed in the Urals region of Russia under the Soviet biological

weapons program, were drenched in bleach, sealed in stainless steel drums and sent to the island by train. The bleach was to have killed the bacteria before it was buried in the pit, the paper reported.

However, U.S. military scientists and intelligence officials, who have studied the site for four years, found that some spores survived and were potentially lethal, the report said.

The danger of contamination has increased because the Aral Sea is drying up. As it does so, the island has grown, and local officials fear it will soon be connected with the mainland.

— Air Force Times

Electric current finds aircraft flaws

Some might say there are "magic machines" at Tinker Air Force Base, Okla. — machines that defy understanding. They are located in the base's Air Logistics Center "eddy current unit" and, though magical, do not require smoke and mirrors to perform amazing feats.

As part of the Rotating Component Section, the unit is the keeper of 22 ultra-computerized machines determining life management options for aircraft parts using the phenomenon of eddy current, an electric current induced by an alternating magnetic field.

"We are an inter-service facility," said Mr. Roscoe Elliott, production manager for the eddy current unit. "We do eddy current testing of parts service-wide and have the rotor contract for the Army Blackhawk."

When an aircraft part comes to the eddy current unit it's cleaned, polished and visually inspected for flaws. Sometimes flaws are removed through the polishing process. If not, they're put on one of the eddy current machines capable of probing to discover flaws. The probe sends out an electric current that registers discontinuity and shows the exact length or size of the defect, however minute. The unit uses eddy current and ultra-sonic testing to examine aircraft parts. Both methods are non-destructive in identifying defects.

"We do the turbine rotor parts for the F110-100/129/400, F101, F100-200/220 and the TF-33 (jet engines) through manual inspection, semi-automatic inspection or automatic inspection. We even have hand-held equipment such as the 19E and the Ultra Sonic 15," said Mr. Elliott. The 19E is used primarily to perform the dovetail inspections on the TF33. Mr. Ken Cheever, non-destructive tester, uses this piece of equipment.

"This is a universal machine using different probes to find the smallest flaw in the rotor's dovetail," he said. "I

went to formal training to learn how to use these machines, and now I'm in charge of training the rest of the staff. This piece of equipment saves us a bunch of time — we went from 28 separate machines to this one universal machine."

Ultra-sonic testing is used for the same principle as eddy current, but it operates using transducers instead of probes.

"It's similar to the concept of a depth finder," said Mr. Joe Kwan, American Society of Non-destructive Inspectors and a recent transfer from McClellan AFB, Calif. "With the U.S. 15 (ultra-sonic machine), we look for defects that are hard for the eddy current machines to find. With the hand-held transducer, we can get up under ledges better, but the whole part still goes to the eddy current machines for the larger check."

The unit operates 18 "retirement for cause" eddy current machines. Sixteen of these are automatic and used for the F110 and F101 series engines. The remaining two are semi-automatic and used on F100 series engines.

"These two new RFC machines are Pratt & Whitney's just in from Kelly AFB, Texas, in the last six months," said Mr. Elliott. "They help handle the 24 percent increased workload on the



Ms. Margo Wright

An employee in the eddy current shop uses a tiny transducer to find cracks in an F110 engine.

F100 series."

There are also four semi-automatic eddy current-IIC machines in the unit. Members of the unit build probe configurations which tell the computer to perform the eddy current inspections. With any of the machines, whether semi-automatic or automatic, the operator interacts with the machine 100 percent of the time.

"You don't have to be here to do a probe configuration on the automatic equipment," said Mr. Elliott, "but a certain amount of monitoring is necessary. It takes about six hours to run the dovetail parts on the RFC



Ms. Margo Wright

Ms. Carlan Rodriguez prepares an F110 rotating air seal for the eddy current inspection. The machine selects a probe, ensures the part to be inspected is in the correct position and detects internal or minute cracks.

machine with the flaw displayed on the screen in degrees."

Frequently, the unit does a productivity study to see if changes could be incorporated to create savings.

"When we do the time study and find we can do something another way and save time," said Mr. Elliott, "we adjust our customer pay schedule which brings the cost of the engine down. We're constantly striving to bring costs down." Checking for flaws on four rotors of the F110-100 takes about 150 hours. For the F110-129, it takes about 400 hours to check the same number of rotors.

"We're working to bring the time down on the F110-129," said Mr. Elliott. "It has more complex geometries than the F100 series."

The probes used on the equipment cost from \$500 to \$14,000

each. One probe, the micro manipulator, costs \$7,000. It inspects the undersides of bolt holes and adjusts itself to inspect the undersides and flat surfaces of parts.

"We probably have a probe inventory valued at \$2 million," said Mr. Elliott.

Tests on the bore holes take about four days and tests on the dovetails take

about a week to complete. Four machines are dedicated to running nothing but the dovetails, which allows the unit to produce more parts in less time.

"We produce anywhere from nine to 24 parts a day from this shop," Mr. Elliott said.

The unit is constantly upgrading the computer equipment inherent in the eddy current machines as well as updating work stations.

"You need to keep your employees happy," said Mr. Elliott. "The equipment needs to work with them, not against them. We've created an in-house team, made up of the production engineer, management and a contractor, which constantly works to improve the equipment and the process. To coin a phrase, 'a happy team is a productive team.'"

— Ms. Gail Kulhavy,
OC-ALC Public Affairs



Ms. Margo Wright

Mr. Keith Payne oversees the inspection of an F110-129 high pressure turbine rotor disk.

F-15 experts hone helmet

F-15 testers at Edwards Air Force Base, Calif., are helping add another page to aviation history, as they flight test a production-model fighter aircraft helmet-mounted display system for the first time in the United States.

Known as the Joint Helmet-Mounted Cueing System, or JHMCS, the helmet will change the nature of fighter aircraft combat for U.S. pilots, according to Capt. Mark Spillman, advanced projects flight commander, F-15 Combined Test Force.

JHMCS displays key information, such as altitude, airspeed, aircraft heading and target information, on a visor attached to the helmet.

This information is normally shown on the head-up display, or HUD, located at the front of the cockpit. A pilot equipped with JHMCS will have the information available without the need to look inside the cockpit or through the HUD.

A pilot can adjust the helmet's display to go blank when he's looking at the HUD or down into the cockpit. He or she can also program it to go blank for both areas.

JHMCS isn't being developed to replace the HUD, and

pilots will still use the HUD as a backup flight reference. The HUD will provide the navigation and targeting functions it always has.

Though useful, Capt. Spillman said the display capabilities of JHMCS are less important than its "cueing" capabilities.

Cueing refers to the ability of the helmet to point sensors and weapons in the direction a pilot is looking. The helmet is being developed to work together with the aircraft's radar and the AIM-9X sidewinder supersonic, heat-seeking air-to-air missile, which is also under development.

The cueing ability will allow pilots to aim and fire an AIM-9X missile at an enemy who's a high angle off the aircraft's heading. For example, if a pilot sees an enemy aircraft off to the left, he or she will be able to cue the radar on the target and fire a missile without repositioning the plane to face the target. JHMCS will also verify that the AIM-9X is locked onto the correct target.

"JHMCS will open up the

weapon's employment zone, giving pilots more flexibility in combat," said Capt. Spillman. "That's the big advantage of the system."

Testers are initially developing JHMCS on an F-15. Simultaneous development is also being conducted on the Navy's F-18. Once the system is developed on these aircraft, it will be adapted to the F-16, F-22 and Joint Strike Fighter.

The F-15 Combined Test Force, in cooperation with other base agencies, is leading the effort to test the system.

Members of the test force began preparing to test JHMCS last year by gaining experience with a similar system that served to demonstrate the technology of helmet-mounted displays. Experience with the technology demonstrator, known as the Visually Coupled Acquisition and Targeting System, or VCATS, helped testers figure the best way to test JHMCS.



t-mounted display system

"VCATS was a great warm-up for us, since none of us had any helmet experience," said Capt. John "Trigger" Deems, a test pilot working on the JHMCS program. "In general, the two systems are similar, as far as what the pilot sees."

Armed with the knowledge gained from working with the technology demonstrator, the test team began testing JHMCS on the ground with a variety of simulations. Ground testing costs less and is not as dangerous as actual flight tests, Capt. Spillman said.

Though ground testing will continue through much of the test program at Edwards, the heart of the testing takes place in the air.

Members of the test force broke down the flight testing into three main phases that will include a total of about 70 test flight missions.

The first phase is integration testing, which involves integrating the helmet with the airplane, integrating the AIM-9X missile with the plane and then integrating the helmet, missile and plane together. Thirty flights are planned to support this effort.

Twenty flights are dedicated to the operational assessment phase. In this phase, pilots perform basic fighter maneuvers with the system and assess it in an operational mode.

The remaining twenty flights are reserved for fine-tuning the system's software. The final software version will be produced and flight tested during this phase.

Flight testing is a crucial element in the development of a complex system such as JHMCS, said Capt. Deems.

"In a program like this, where we are testing two new systems (JHMCS and AIM-9X) and their interaction with the airplane's existing systems, there's a strong possibility that things won't work exactly as expected," he said. "Although many bugs can and should be worked out on the ground and in the lab, there's no substitute for flight testing."

Boeing, along with its sub-contractors, built JHMCS. Boeing serves as part of the F-15 Combined Test Force and works side-by-side with military members and government civilians to develop, test and evaluate the system. When the test force identifies areas that

need to be changed, Boeing arranges for the changes to be made.

The first flight at Edwards with JHMCS was Oct. 22, 1998. Testers expect to finish the developmental portion of the testing in July and then pass the system along to operational testers.

— Mr. Bill McQuillan, AFFTC Public Affairs



Mr. Bill McQuillan

JHMCS helmet testing at Edwards AFB, Calif.



Mr. Bill McQuillan

Senior Amn. Jerry Westbrook, assistant F-15 crew chief, signals a pilot during preparation for a flight with the system.

Helmet testers shoot for the stars

As the Joint Helmet-Mounted Cueing System, or JHMCS, test team evaluates the system's targeting accuracy, they will literally be shooting for the stars.

Faced with the challenge of finding test targets throughout the entire range of helmet operation, the testers decided stars and planets would fit the bill.

Sirius, Saturn, Venus, and others, serve as "targets" of exact known locations, providing a valid source against which testers can compare targeting feedback from the helmet. With the pilot aiming at a star or planet, the test team can check to see how close the system is to being on target. Since stars and planets fill the night sky, testers have a large number of pre-set targets from which to choose.

"The heart of the matter is you need a certain amount of accuracy for a weapon like the AIM-9X to do its job properly," said Capt. Mark Spillman, advanced projects flight commander, F-15 Combined Test

Force. "The AIM-9X has a limited field of view. If you want it to work, you need to tell it where the target is with a certain degree of accuracy."

In a system as complex as JHMCS, there are many opportunities for error in the aiming process. Capt. Spillman said the goal of the testing is to eliminate as many of those sources of error as possible.

The test force called for some outside help from Maj. Ernest Tavares, a flight test navigator.

"He (Tavares) has been a crucial advisor the whole time," Capt. Spillman said. "Astronomy is his hobby. He's the kind of guy who can look at the night sky and start naming off stars. He helped us determine which times and targets would be best."

According to Capt. Spillman, by using the stars as targets the testers have been able to verify several improvements in the system's accuracy.

— Mr. Bill McQuillan, AFFTC Public Affairs

New coat of colors paints success at Kelly

KELLY AIR FORCE BASE, Texas. — Early in the morning on May 21, the first commercial work at the Boeing Aerospace Support Center at Kelly AFB, Texas, debuted when an MD-10 aircraft wearing a fresh FedEx paint scheme rolled from a hangar.

"This is a very significant milestone," said Mr. Lyndon Harper, Boeing's MD-10 Program Director. "It is the first of many commercial jobs we will see at the Boeing Aerospace Support Center at Kelly in the future."

The MD-10 is scheduled for delivery to FedEx by mid-July. Boeing expects to receive its next conversion, an MD-11, by mid-summer.

"This was the first job we did using the de-paint process and it worked great," said Mr. Harper. "This was also the first high gloss paint job for us here at the Boeing Aerospace Support Center, and the equipment and people in the paint hangar did an outstanding job."

After the original paint was removed and before the new paint was applied, a lot of work went into the former United Airlines plane to

convert it from a passenger liner to a freighter.

First, Boeing personnel removed its three General Electric CF6 engines and replaced them with fresh power plants, and a new 12 feet by 9 feet modular cargo door was installed on the left side of the aircraft. The airframe was beefed-up by removing floor beams and replacing them with structural supports. To support the aircraft's new role, cargo handling systems were installed on both upper and lower decks. Finally, in keeping with FedEx worldwide operations, a new global positioning system was installed along with many new instrument packages.

The Boeing Aerospace Support Center at Kelly opened for business with 250 employees and its first



Mr. Dave Stokes

The last touches of paint are added to the first commercial work performed by the Boeing Aerospace Support Center at Kelly AFB, Texas.

aircraft, a C-17, on Aug. 12, 1998. By November, the ramp and area surrounding the building were filled with Air Force KC-10s and C-17s, as well as commercial aircraft.

Approximately 1,500 people work for Boeing at the Kelly facility.

— Mr. Dave Stokes, SA-ALC Public Affairs

Environmental initiatives save AEDC expenses

ARNOLD AIR FORCE BASE, Tenn. — By taking an environmental quality approach to waste management, several initiatives implemented by the Hazardous Waste Operations Group, or HWOG, saved Arnold Engineering Development Center at Arnold AFB, Tenn., more than \$35,000 in hazardous waste disposal costs. These programs include improved processing of oil soaked absorbents, aerosol cans and excess materials.

The nine-member HWOG is composed of storekeepers, laborers, truck drivers and environmental specialists and is headed by Mr. Mike Hunter, AEDC senior environmental engineer. The group actively supports the pollution prevention program on base by practicing source reduction, recycling and reuse of materials.

"HWOG plays an integral role in the ongoing success of the pollution prevention program," said Ms. Letha McEntee, AEDC environmental

specialist.

The group was originally formed in 1995 to tackle compliance issues associated with hazardous waste management.

"HWOG has moved from that original perspective to one that actively pursues hazard and non-hazardous waste minimization," she said.

The HWOG processes oil absorbents by squeezing them through a press or wringer to capture even more oil. Excess oil is sent to the oil recycling facility. The absorbents then are returned to the drums and after 120 drums are collected, emptied into a roll-off container and shipped as non-hazardous waste for disposal at a cost of seven cents per pound.

The previous process involved leaving the absorbents in the drums and shipping everything at 12 cents per pound.

The new process results in savings for disposal cost and a cost avoidance to AEDC by recycling drums for reuse on additional absorbents.

"Based on the difference in disposal

cost and cost avoidance of purchasing drums, AEDC saved about \$13,800 in the past two years by shipping the absorbents in the roll-off containers," Ms. McEntee said.

A new aerosol can disposal system saved AEDC \$900 during the past two years. Aerosol cans are now punctured and the contents collected in a drum. The empty cans are separated for scrap metal.

Before this program, the cans were shipped intact as hazardous waste at a cost of approximately \$1 per pound. Under the new process, the contents of the aerosols are shipped in 30-gallon drums at a cost of 24 to 27 cents per pound.

The HWOG actively locates users for excess materials in conjunction with the Hazardous Pharmacy Group. Excess paint is issued to the paint shop, custodial supplies are provided to base agencies and lubricants from automotive repair on base are placed back in the pharmacy for repackaging and reuse.

The HWOG also processes excess

material that cannot be used on base through the Defense Reutilization and Marketing Office's reutilization, transfer, donation and sales program.

"Team cooperation between HWOG, the pharmacy as well as facility and support personnel continue to make these reduction efforts a success at AEDC," Ms. McEntee said.

— Mr. Marty Martin, AEDC Public Affairs

Air Force honors fallen with new award

EGLIN AIR FORCE BASE, Fla. — The Air Force will now recognize the contributions of a former Eglin AFB employee through an annual award.

"The Larry Kabase Memorial Award for Excellence in Air Force Classified Contracting" was recently approved as a new Air Force-wide annual award by Brig. Gen. Frank J. Anderson, deputy assistant secretary of contracting.

The award was named after Mr. Larry Kabase who was the chief of Special Programs Contracting in the Air-to-Air Joint Systems Program Office at Eglin. His untimely death last May ended his 25-year career in federal service.

Taking into account such factors as using innovative business practices, demonstrating leadership skills and maximizing team problem solving, the award will honor classified contracting individuals or teams whose contributions significantly impact the Air Force and its mission.

"These criteria were decided upon because they represent what Larry so consistently demonstrated and pushed his teams toward on a daily basis," said Ms. Jackie Crot, chief of Special Programs Contracting. "Larry's strong leadership allowed all of us to excel at our jobs. He was a superior mentor who had an uncanny way of challenging and motivating each of us to push for excellence."

The award will be given to the first recipient next year.

— Ms. Heidi Gryzen, AAC Public Affairs

AFMC centers help Air Force 'go digital'

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Creating better access to information throughout all Air Force acquisition and sustainment activities is the goal behind the Air Force's new Integrated Digital Environment, or IDE.

Offices from five Air Force Materiel Command centers are stepping up to help meet that goal as designated

IDE innovation centers.

The IDE concept was created in response to a 1997 directive from the deputy secretary of defense to move toward acquisition and logistics operations being based on digital methodologies and products — essentially paper-free operations — by 2002.

According to Col. Terry Balven, director of information planning at Headquarters Air Force, changing the Air Force's current climate of sharing information will come from initiatives developed by system program offices and other single-manager units. The more creative of these will be designated as IDE innovation centers.

"We want people to change how they think about doing work," Col. Balven said. "We need an environment where our system program offices can work with their contractors, major commands, field units, other AFMC

organizations — customers inside and outside the Air Force — to get better information with less hassle."

Approximately 25 more innovation centers will join those already participating in the project within the next few months.

The five AFMC offices designated as IDE innovation centers are: Global Air Traffic Operations/Mobility Command and Control Program at Hanscom AFB, Mass.; Advanced Diagnostic Technology Integration Center at Kelly AFB, Texas; Human Systems Program Office at Brooks AFB, Texas; Air Force Research Laboratory's Directed Energy Directorate and its Space Vehicles Directorate both at Kirtland AFB, N.M. The Acquisition Policy Management Division at the Pentagon is the sixth IDE center in the freshman class.

— Ms. Leigh Anne Redovian, AFMC Public Affairs



Mr. Ray Flory

Squadron answers owls' hoot for help

EDWARDS AIR FORCE BASE, Calif. — A mother and father owl recently made a potentially electrifying choice; they chose an angle pole with double cross arms to build their summer home.

No doubt appealing because the site provides a view of the area and protection from the afternoon sun, the owls will use the nest until their babies grow old enough to leave. At that time, the young owls will find mates and begin a new life cycle.

The nest is positioned between

34,500 volt circuits. The circuits are the emergency backup lines between the main base at Edwards and the Air Force Research Laboratory, several miles away.

"The lines were taken out of service to prevent electrocution to members of the owl family while they nest," said Mr. Ray Flory, 95th Civil Engineer Group. This was a goodwill service provided to these small residents of Edwards by members of the 95th Civil Engineering Squadron, Exterior Electric Element."

— AFFTC Public Affairs Report

Visiting Vietnam

Medal of Honor recipient's actions are not forgotten

She did not serve there during the war, yet Col. Nancy McDaniel now understands how countless American lives were forever changed in a place where few visible scars of war remain.

For the retired Air Force colonel now working at the 311th Human Systems Wing's Business Development Office, Brooks Air Force Base, Texas, a recent journey changed her perspective about the war and a culture she previously knew very little about. Her trip to Vietnam paid tribute to a Medal of Honor recipient on the 30th anniversary of his death.

"They burned tracings (of names) taken from the Vietnam War Memorial," said Col. McDaniel, about a memorial ceremony conducted by 101st Airborne Division veterans on Hill 376 in Quang Tin province. The jungle has since reclaimed this former battlefield near Hue where many Americans were killed on June 2, 1969. Among them was 20-year-old Army combat medic Joseph G. LaPointe,



American Vietnam War veterans ride in pedicabs on the way to the war memorial in Ho Chi Minh City.

Col. Nancy McDaniel

Jr. of Dayton, Ohio, who earned the Medal of Honor during a helicopter assault mission.

"It was a very emotional ceremony," said Col. McDaniel about the culmination of an 11-day Vietnam pilgrimage

by a group of 26 Americans, the majority of whom had served with LaPointe as members of B Troop, 2nd Squadron, 17th Cavalry Regiment.

A grenade explosion killed LaPointe as he shielded wounded soldiers for whom he had provided first aid. Mr. J.R. Baltazar, who carried LaPointe's body down the hill after the battle, and Mr. Steve Jones,

whose life LaPointe had saved, were among veterans Col. McDaniel bonded with during the trip.

Col. McDaniel's connection to LaPointe is through her best friend Ms. Kandy Nevin, LaPointe's sister-in-law.

Ms. Nevin told Col. McDaniel about the trip which resulted from a Fort Campbell, Ky., reunion of LaPointe's old unit. Ms. Nevin, LaPointe's widow Cindy and their son Joe were members of the Vietnam tour. Three TV station crews, including a BBC documentary team, accompanied the group.

Col. McDaniel's adventure was also personal because her husband, retired Air Force colonel Glenn Davis, accompanied her.

"My husband served two tours in Vietnam. His brother was killed there," she said.

Col. McDaniel's other LaPointe connection involved her participation in a 1998 Fort Sam Houston ceremony.

"Cindy (LaPointe) called me to ask if I could represent the family at a rededication ceremony that named a Fort



LaPointe

Col. Nancy McDaniel pauses at Marble Mountain marker, near a former American base camp in Vietnam.



Col. Nancy McDaniel

Sam Houston barracks in her husband's honor," she said.

A Fort Campbell housing complex is also named after LaPointe.

The Hill 376 ceremony may have been the most dramatic event on the trip, but a Protestant Church memorial service in Tam Ky near the battle site was emotional as well.

"It was incredible. The Vietnamese minister read the names of (deceased) American soldiers, plus my husband's brother's name. At the moment he was reading the names, a flock of butterflies flew into the church. There wasn't a dry eye in the place," Col. McDaniel said.

She said LaPointe's memory was further honored when the group gave 700 pounds of donated medical books to Da Nang General Hospital.

"LaPointe held a clinic there for children every morning," she added.

LaPointe was truly selfless, Col. McDaniel explained. On the day he died, LaPointe volunteered to go on the mission in place of his replacement. Following the mission, LaPointe planned to depart Vietnam on leave to join his wife and newborn son in Hawaii.

Beside the numerous LaPointe stories, Col. McDaniel was impressed by the industrious Vietnamese whose lack of animosity toward Americans was surprising.

"We were beautifully treated. We met with former North Vietnamese and Viet Cong colonels. They talked about their strategy during the war and their feelings about Americans now," she said.

The Vietnamese officers told the group they realize American soldiers were just doing their duty for a government who had sent them there.

Few signs of war damage and the nearly complete absence of America's former presence there also surprised the group.

"There is nothing left of the American bases," Col. McDaniel said.

While there is a veterans memorial honoring Vietnamese soldiers in Ho Chi Minh City (formerly Saigon), there are no memorials marking key battle sites such as Khe Sanh and Hamburger Hill.

"To the Vietnamese, the war has been over for a long time," Col. McDaniel added. For many in the group the journey there was a catharsis. "The war is now over for them," she said.

— Mr. Rudy Purificato, AFRL Science & Technology Writer

National Atomic Museum celebrates 30th birthday

Founded in October 1969 as the Sandia Atomic Museum, the National Atomic Museum celebrates its 30th anniversary this year.

Located at Kirtland Air Force Base, N.M., since its induction, the museum's mission is to serve as America's resource for nuclear history and science. The museum does this through exhibits and educational programs that convey the wide diversity of individuals and events which have shaped the historical and technical context of the atomic age.

Besides having permanent exhibits on nuclear medicine and robotics, the museum has the country's most complete collection of unclassified Air Force, Navy, Marine and Army nuclear weapons and delivery systems. These weapons are featured as part of the story of the Manhattan Engineer District, America's \$2.2 billion effort to build the first atomic bombs during World War II.

On July 18, 1973, four years after the ribbon cutting ceremony opening the museum, the name changed to the National Atomic Museum to reflect its national and international audience. It is the only public museum in the nation which preserves the

history of nuclear weapons.

In late 1991, Congress passed the National Atomic Museum Act that granted the museum a Congressional charter as the official atomic museum of the United States.

A long-term goal of museum management is to move the museum from Kirtland AFB, so it's more accessible to the general public. The new improved museum, with double the space, would contain additional exhibits, a larger theater and other features that would better enable the National Atomic Museum to present the history and future of the atomic age.

— Mr. Sam Bono, Museum Historian



A B61 thermonuclear laydown bomb with 17-ft diameter ribbon parachute deployed is on display at the museum.



Proudly on display at the National Atomic Museum, Kirtland AFB, N.M., is a B-52 Stratofortress. The only version of the plane still in service is the B-52H, and in August of 1995 it broke the world speed record for an aircraft weighing 440,000-550,000 pounds.

Bear-ly Containable

Northern Bear II gears troops for Balkans

The first elements of the 77th Air Base Wing deployment team from McClellan Air Force Base, Calif., arrived at Beale AFB March 22, beginning exercise Northern Bear II. As U-2's, T-38's, and KC-135's flew overhead, adding to the realism of the exercise, "New Dinar Air Base" was established by 214 personnel in the middle of vast grasslands.

"The scenario we're running has been eerily similar to events in the real world," said 77th Air Base Wing exercise coordinator Mr. Mike Ballengee. "The base intelligence office created a very realistic setting which real-world events have enhanced."

Similar to Bosnia

As planners began putting pieces of the project together, requests from the 77th Security Forces Squadron drove the initial concept.

"We chose Bosnia initially because the security forces wanted an environment we could simulate," said 2nd Lt. Mark R. Koch, deputy director of intelligence for the 77th Air Base Wing. "It's hard to recreate the Saudi desert in Sacramento."

Lt. Koch mentioned it was entirely possible his wing could deploy to the Balkans, so the training scenario provided the best opportunity to train for real-world contingencies.

Striving to achieve realism was a key element in planning and executing Northern Bear II.

"We want our troops to finish this exercise with the ability to actually do what it takes to deploy to a foreign area of operations, and deploying takes a great deal of skill," Mr. Ballengee said.

Establishing a forward position is a

substantial logistical effort, and moving the "fighting 77th" to Beale involved five flatbed trailers loaded with 16 aircraft pallets of supplies and three pallets of lumber for building and repairing structures. In addition, more than 30 other vehicles loaded with personnel and duffel bags left for the simulated Bosnian base.

"Even though we only moved about an hour from McClellan, we planned and executed this operation as though we were really going to Bosnia," said Master Sgt. Valerie Daniels, superintendent of deployment operations. "Everything we've done has been designed to train people to actually load airplanes and go set up a base."

A learning experience

As well as learning the specifics of an operational deployment, this exercise was an opportunity to learn about real-world issues facing U.S. and

U.N. forces in Bosnia.

"That is a very complex and confusing theater of operations. You have to factor in the Serbs, Bosnians, Croats, other neighboring countries and the different political and religious philosophies," said Mr. Ballengee. "This has been a great opportunity for me, as well as those participating, to learn more about the place and the mission."

While deployed to Beale, each organization set specific training goals. Guiding the training was the Exercise Evaluation Team, or EET.

"As the EET, we're working to ensure McClellan's troops are prepared to carry out their specific wartime missions, and we've designed a large number of practice scenarios to be very realistic based on what we know about the Bosnian theater," Mr. Ballengee said.

— 2nd Lt. Robert A. Firman, SM-ALC Public Affairs



2nd Lt. Robert A. Firman

Security Forces Squadron troops from McClellan AFB, Calif., respond to a simulated chemical attack during Operation Northern Bear II.

The search for Uncle Sam

Chief Master Sgt. Bob MacDonald of Brooks Air Force Base, Texas, is passionate about his four-year quest in searching the family tree of Samuel Wilson, who the U.S. government officially considers the original Uncle Sam. He hopes his investigative efforts will culminate in the first comprehensive biography ever published about the legendary man.

"Growing up in Troy, N.Y., we all knew he was a real person," said Sgt. MacDonald about his hometown's most famous citizen.

Despite Mr. Wilson's legal status, most Americans don't believe Uncle Sam actually lived.

"When I came into the service, many people doubted the story. There is nothing in print about Samuel Wilson," admits Sgt. MacDonald, the Air Force's public health field manager at the School of Aerospace Medicine's Public Health Department.

Sgt. MacDonald is among a dozen people in this century, including Brooks Field WWI pilot Col. Edgar Noyes, to have researched the Uncle Sam story.

"I hope my book will be a complete account of the Sam Wilson story, but there are so many threads (leads) to follow," admits Sgt. MacDonald, who resumed his research 18 months ago after a 15-year hiatus.



Chief Master Sgt. Bob MacDonald
**Mr. Samuel Wilson's grave
in the Oakwood cemetery
in Troy, N.Y.**

The novice author was first inspired to write the book when he obtained a copy of congressional testimony used by Troy's Veterans for Uncle Sam to secure Mr. Wilson government recognition.

On July 20, 1959, the U.S. House of Representatives unanimously approved a resolution establishing Mr. Wilson's grave as a national shrine at Troy's Oakwood cemetery. In 1961, President John F. Kennedy



Chief Master Sgt. Bob MacDonald

A monument to Mr. Samuel Wilson of Troy, New York — the man believed to be the legendary "Uncle Sam."

signed a resolution officially establishing Mr. Wilson as the original Uncle Sam.

"When I went home for my brother's wedding, I was re-inspired," Sgt. MacDonald said about the book he has initially titled "America's Uncle Sam: The Life and Times of Samuel Wilson."

According to Sgt. MacDonald, Uncle Sam was a common guy who lived during uncommon times. He suspects as an 8-year-old Mr. Wilson witnessed the British army pass by his Massachusetts home on their way to the first Revolutionary War battle at Lexington and Concord.

The future national symbol was born Sept. 13, 1766, in Menotomy (now Arlington), Mass., the sixth of 13 children of Mr. Edward Wilson and Ms. Lucy Francis. Mr. Samuel Wilson



Mr. Rudy Purificato

Chief Master Sgt. Bob MacDonald holds the artist's, Mr. James Montgomery Flagg, famous WWI recruiting poster depicting "Uncle Sam."

became an entrepreneur.

"He was a brick maker and meat packer. He also sold apple trees and ran a sloop on the Hudson River," Sgt. MacDonald said.

During the War of 1812, the Army hired Mr. Wilson as a meat inspector. An incident involving a meat shipment to the army at East Greenbush led to his name being forever linked with Uncle Sam.

Our familiar American icon was the product of an amusement resulting from confusion over the government's new standards for merchandise labeling. On federal shipments, contractors were required to stamp the initials U.S. (representing United States), along with those of the government purchasing agent, on merchandise containers.

According to Mr. John Frost's 1843 publication "Book of the Navy," a visitor asked a Troy dock worker the meaning of the letters 'E.A. - U.S.' stamped on meat barrels. The worker is reported to have joked, "Elbert Anderson (government contractor) - Uncle Sam (Wilson)." The army at East Greenbush perpetuated the joke by adopting the nickname.

Shortly thereafter, Mr. Wilson's nickname appeared in print. However, following his death on July 31, 1854, it took years before he would become an American folk legend.

One of the Uncle Sam mysteries Sgt. MacDonald is investigating involves what Mr. Wilson looked like. There are no known authenticated images of the man, although hundreds of artifacts featuring his likeness exist.

In 1917, Troy's Uncle Sam Statue and Picture Company produced Mr. Wilson's portrait, painted by Mr. William McKenna, and created statues of him based on the portrait. That year, a Troy Times newspaper story reported the company sent complimentary copies of the portrait to prominent

Americans, including Teddy Roosevelt and Henry Ford.

Today's popular Uncle Sam image is the product of several artists. The most notable of these was by Mr. Thomas Nast, a 19th century political cartoonist whose works appeared in Harper's Weekly. While the artist created such national symbols as the Elephant and Donkey representing the Republican and Democrat parties, he did not invent Uncle Sam based on Mr. Wilson's image.

"Nast didn't even know Uncle Sam was a real person until noted printer and artist-photographer, William Henry Jackson, told him. Jackson, Wilson's great nephew, mentions it in his autobiography "Time Exposure,"" Sgt. MacDonald said.

The contemporary Uncle Sam image is the work of Mr. James Montgomery Flagg, whom the U.S. Army hired to produce a WW I recruiting poster.

"It's a detective story," said an exuberant Sgt. MacDonald, who relishes uncovering new material about a man Americans affectionately call Uncle Sam.

— Mr. Rudy Purificato, AFRL Science & Technology Writer



Troy, New York Postcard

Intel officer exercises extreme fun through BMX

Sporting a mountain bike helmet and a T-shirt from his hometown basketball team, the Orlando Magic, "Soda Pop" stood on his 13 year-old BMX bike at McClellan Air Force Base, Calif., and reminisced over his teenage glory days as a BMX racer.

Because his name is pronounced like the beverage "Coke," and he's a father, 2nd Lt. Mark R. Koch was dubbed "Soda Pop" while in intelligence school. The 77th Air Base Wing officer got involved with bicycle motocross racing when he was 12. When he got to college, however, Lt. Koch's involvement in the sport tapered off. Now, after almost 10 years as a "professional student" and a few years as an Air Force officer, Lt. Koch once again finds himself atop a BMX bike.

"I started with BMX in 1980; it was the thing to do at the time," said Lt. Koch. "It was what I saw on TV and read in magazines. My dad took me to a track, and I was finally going to race."

He was hooked from that moment on, so Lt. Koch devoted himself to the sport and his dream of becoming a pro. He practiced and competed while working in and managing bike shops.

"The first two years were hard," Lt. Koch said. "I broke a lot of bones."

In his third year, however, he began to win.

In 1984, while taking a few laps before a national qualifying race, Lt. Koch experienced a serious setback. He fell and suffered a serious break in his foot. His opportunity to compete against the best racers in the world was over before it began. Yet, quitting was never an option.

After about six months of recovery and hard work, he was back on his bike.

All his hard work, determination and broken bones were not in vain. Exactly one year later, Lt. Koch won first-place in the national race group for his age.

"I wanted to be a pro," Lt. Koch said. "I was talented, but not that talented. I wasn't consistent, so I felt I needed to retire and that was the appropriate time."

Leaving behind the pressures of competition on a high note, Lt. Koch applied what he learned about determination to his education and the Air Force.

"Now that I am older, I want to give back to BMX; it had done so much for me when I was young," he said.

So "Soda Pop" is involved in the local scene not only as a racer, but also as a teacher and advocate of the sport. Maintaining several Web sites, he highlights the local tracks and talented riders.

Local kids at the track flock to "Soda Pop" for his experience and guidance. He talks to parents and other racers, praising hard work and admiring the natural talent around him.

"It's really satisfying to spend some time with a kid and see him improve from week to week," Lt. Koch said. "Few feelings are better than that."

— Mr. Edward Rivera, SM-ALC Public Affairs



Mr. Edward Rivera

"Soda Pop," a 77th ABW Intelligence officer and BMX bike racer watches Sacramento kids practice.

Space researcher seeks smaller specifications

The next time you prepare to fly off on a long business trip and want to pack just carry-on luggage, call Mr. Jim Lyke for help. He is a microsystems engineer at the Air Force Research Laboratory's Space Vehicles Directorate at Kirtland Air Force Base, N.M., and is really good at cramming a lot of stuff into small places.

One of his latest packing projects is the Advanced Instrument Controller, or AIC, now onboard NASA's Deep Space II research mission launched January 1999 and headed to Mars.

More powerful than an early Apple II desktop computer, AIC is a multi-chip, stand-alone computer module about the size of a postage stamp and thickness of a quarter that can analyze 32 incoming data streams.

It's also tougher than woodpecker lips. It has to be. Housed inside a tiny

polar lander probe, AIC will impact Mars near its south pole at a force of 30,000 Gs to study subterranean soil samples and search for signs of water.

Exploration results will hopefully give scientists a better picture of past changes in Mars' climate and enable them to better understand weather shifts on earth.

Mr. Lyke looks for ways to make space and missile subsystems smaller, lighter, more reliable and more powerful. He supervises a small team of experts that devise high-tech ways to build and integrate a variety of miniature devices — gears, motors and electronics — for use in space.

Because spacecraft are usually large



AFRL microsystems engineer Mr. Jim Lyke (right) and co-worker Mr. Steve Sampson discuss the merits of the Advanced Instrument Controller onboard NASA's Deep Space II mission now headed for Mars.

and heavy, launch costs are high. Mr. Lyke's efforts, along with those of his commercial and university partners, are

geared to smartly design and package powerful low-mass spacecraft sub-systems, which has become particularly important in the pursuit of affordable, reliable missions.

He does this with relatively little money. This year's budget for advanced packaging research is about \$2 million and comes from the contributions of several federal agencies such as NASA, the Ballistic Missile Defense Organization and the Department of Defense.

"Primarily due to a constructed defense budget and continuing U.S. military obligations around the world, the Air Force, as well as other DOD agencies, must still operate within a 'do more with less' environment," said Mr. Lyke. "This postage-stamp-size-computer, weighing about three grams, literally helps enable that end. We are working to shrink the size of such modules even further by making their structural plastic backing thinner, maybe down to 1/1000th of an inch. If we can shave the material thin enough, we can stack many AIC-like modules in a space where now only one or two can fit. The net result of recessing computer electronics is less mass, less weight, but more processing ability for more complicated missions."

Mr. Lyke explained that he'd like to see this ultra-thin multi-chip technology on a space experiment within the next five years.

In addition to reducing launch costs through weight and size reductions, directorate scientists and engineers hope to lessen satellite design and assembly time to save additional money. They also want to preserve adequate surveillance and communication payload capacities. Ultra-thin modules may help facilitate, even accelerate these ends through an innovative AFRL undertaking called multifunctional structures, referred to as MFS, or "smart skins."

MFS will replace currently separate satellite components such as wiring cables and harnesses, electronic boxes and bulky connectors into a single, lightweight, virtually trouble-free structure that is the satellite's "skin."

"MFS will exploit smart, radiation-hardened electronics that allow different MFS panels to snap perfectly together like our child's 'LEGO' bricks," said Mr. Lyke. "None of this is currently easy, but AFRL is committed to making it routine in the future."

— Mr. John Brownlee, AFRL Space Vehicles Directorate

Ms. California dares youth to dream

The unit public affairs representative for the 938th Engineering Installation Squadron at McClellan Air Force Base, Calif., is also Ms. California 1999.

Ms. Candace Lucero has worked at McClellan for 15 years. She competes in beauty pageants and works with children in hope that she can be a positive role model.

Motto: Behind every cloud there is always a rainbow — "I always look for the positive when faced with a challenge."

Hero: Wilma Mankiller — Through her determination and support of many of the tribal members, she became the first elected female chief in modern history to lead a major Native American tribe. She won the respect of the Cherokee Nation and made an impact on her culture and her mission to bring self sufficiency to her people.

Music: Celine Dion and Will Smith

Book: "Out of the Blue," by Mark Victor Hansen and Barbara Nicholes

Hobbies: Walking, bike riding, reading, attending motivational seminars and studying the Cherokee language

Background: Native of Northern California, born and raised in Sacramento

Competitive path: "About ten years ago, there was a Ms. McClellan pageant on base. I saw an ad in the Spacemaker and thought I would give it a try. I had to give a four-minute speech and I was terrified. I didn't place in the pageant at all. After reevaluating the situation, I realized the importance of what I could gain and



Ms. Lucero

procure as an individual in this newly found world of pageantry."

Keeping a competitive edge: "After the McClellan pageant, I was involved in several local pageants. I was crowned Ms. Folsom 1992, Ms. Capital City 1993, Ms. Sacramento 1994 and I was crowned Ms. California 1999 on Feb. 15. I don't count the years, but make the years count and live my dreams. That is my new philosophy."

Nonprofit work: "I enjoy working with children's organizations such as Children Now and Safetyville USA. These organizations are vital to our community's growth, because they provide the needed tools to help our children make positive and safe choices in their lives. I also promote "Dare to Dream" which is a motivational speech I designed to help our youth to fulfill their own personal goals and keep hope alive in their dreams.

I attend a variety of community and state functions such as ribbon cutting ceremonies, community mixers and parades."

After base closure: "I would like to continue with federal service and pursue my effort to fulfill my own personal dreams."

Schedule: "October 15-19, I will be competing for the national title of Ms. U.S. at the Orleans Hotel in Las Vegas, Nev."

— Ms. Victoria R. Pettaway, SM-ALC Public Affairs



Courtesy Photo

Bugman snares entomologist of the year

Working to prevent pest-borne diseases at overseas bases has earned Capt. Armando L. Rosales the 1998 Air Force Entomologist of the Year award.

The 34-year-old officer is assigned to the U.S. Air Force School of Aerospace Medicine's Department of Public Health, at Brooks Air Force Base, Texas, as Contingency Operations Education Division director.

"This is the highest award I have received," Capt. Rosales said. "It's a small career field, but there are so many good entomologists out there."

Capt. Rosales is one of only 15 active duty Air Force entomologists who work closely with civilian researchers to help the Air Force protect its personnel from pests, especially during deployments.

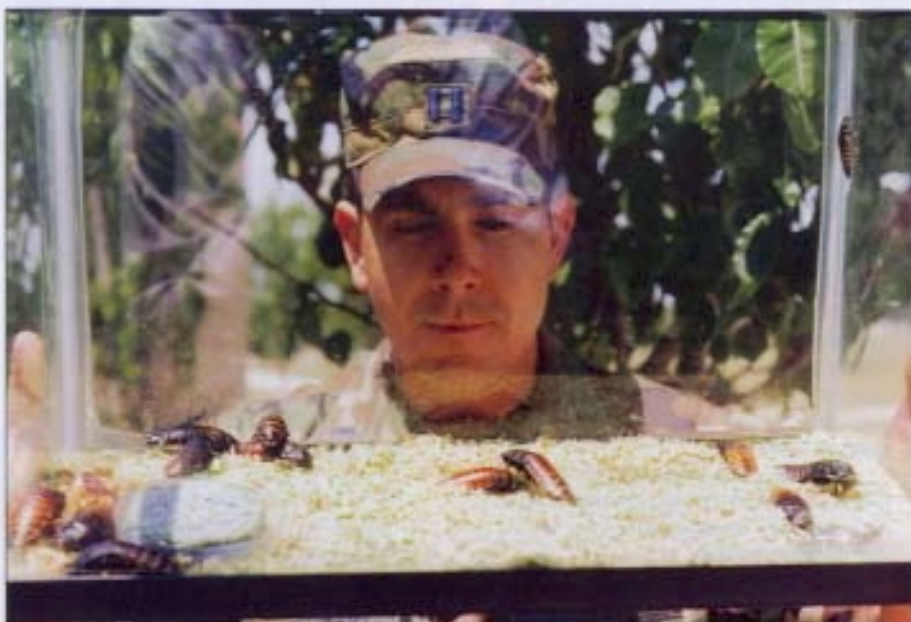
An expert on filth flies that cause diarrheal diseases, Capt. Rosales earned the award primarily for his work in Guam, Kuwait and Korea.

At Anderson AFB, Guam, Capt. Rosales established a pest management program to control rodents, filth flies and bed bugs.

"Most of the time, I survey animals that transmit diseases," Capt. Rosales said. "We (Air Force entomologists) are general biologists. We provide consultation to public health officers and civilian engineers."

He says he is very excited about his Air Force career that is a boyhood dream come true.

"I've always liked creepy crawly things, especially strange



Mr. Rudy Purificato

Capt. Armando Rosales displays Madagascar "hissing" cockroaches.

creatures that fascinate me," said Capt. Rosales.

Growing up in rural Iowa, Capt. Rosales turned his fascination with bugs into a bachelor's degree in entomology and a master's degree in medical and veterinary entomology from Iowa State University. In 1991, Capt. Rosales earned a direct commission in the Biomedical Sciences Corps.

An author of over 35 scientific publications, Capt. Rosales is equally excited about being honored during the 50th anniversary of Air Force medicine.

— Mr. Rudy Purificato, AFRL Science and Technology Writer

Air Force "declassifies" best security specialist

At Eglin Air Force Base, Fla., an Air Armament Center security specialist was named the Air Force's Outstanding Security Forces Civilian Employee of the Year.

Mr. David McLemore was honored at the 1998 Security Forces worldwide symposium award banquet, held at Lackland AFB, Texas.

According to Mr. Fletcher Whittenberg, Acquisition Security Support Division chief, Mr. McLemore's day-to-day activities as a security specialist range from assisting customers on marking classified material, physical security requirements for protecting classified material, computer accreditation for classified systems and certifications for secure rooms and vaults.

Mr. McLemore is credited with pioneering the AAC security classification guide preparation handbook to assist a multitude of customers including active duty, reservists, civilians and contractors within the Department of Defense. He also coordinated, hosted and instructed the DOD Security Institute Information Security Specialist course in September 1998.

"Instead of sending individuals to Richmond, Va., for this course at a cost of \$2,000 plus per person, he brought the course here free on a downlink video teleconference and trained all our new security specialists at once," Mr. Whittenberg said. "This saved over \$30,000 in TDY and training costs."

Although his individual efforts spell



Mr. McLemore

success, Mr. McLemore gives the majority of credit to his co-workers.

"Winning this award is a great honor," Mr. McLemore said. "But the credit goes to the Acquisition Security team. Everybody played a part in my being nominated and selected."

— Airman 1st Class Marnee Carlson, AAC Public Affairs

Smithsonian recognizes AFMC technical library

The Air Force Research Laboratory's Technical Library at Kirtland Air Force Base, N.M., was recently recognized by the Smithsonian Institution as part of an annual awards program.

Four members of the library staff attended the Computerworld Smithsonian awards program in Washington, D.C., where their program was inducted into the permanent research collection of the National Museum of American History.

The program, founded in 1989, searches for and recognizes instances where vision and leadership are demonstrated through the innovative use of information technology.

The technical library was one of 477 innovators nominated and selected for recognition from around the world.

— Mr. Rich Garcia, AFRL Public Affairs



Air Force Research Laboratory's Technical Library officials, from left, Mr. Ron Montbrand, Ms. Marsha Dreier, Ms. Kandy Thorn and Ms. Susan Brown pose with the medallions they received from the Smithsonian Institution's annual awards program.

Weather officer's forecast includes Air Force award

Capt. Robert P. Asbury, an Air Force Research Laboratory staff meteorologist in the Directed Energy Directorate at Kirtland Air Force Base, N.M., has been awarded the Air Force Merewether Award for 1998.

The award recognizes excellence by an individual, or team of two or three individuals, making the most significant technical contribution to the Air Force weather or space environment support mission.

Capt. Asbury analyzed the relationship between weather and laser path transmission variability (optical turbulence) during a \$6 million worldwide collection for the Airborne Laser System Program Office. He also demonstrated the vital importance of atmospheric effects to ABL design and operational considerations. This work proved crucial to the successful completion of a major program milestone passed

in June 1998.

In August 1998, Capt. Asbury conducted time-sensitive analysis of weather limitations to a theoretical ABL engagement against a real North Korean missile launch. This engagement scenario has since been used in major Air Force simulation exercises like "Roving Sands" and "Optic Windmill."

Also during the award period, Capt. Asbury researched the impact of "El Nino" on optical turbulence collection over the Middle East region.

— AFRL Public Affairs Report



Capt. Asbury

AFMC voted best in Defense Standardization

The Department of Defense seeks to promote standardization of material, facilities, and engineering practices to improve military operational readiness. The DOD requires agencies state requirements in performance terms, wherever practical, and make maximum use of non-government standards and commercial technologies. There is a single, integrated Defense Standardization Program, or DSP, which ensures these measures are taken.

Each year the DSP recognizes an individual and a team or organization

from each service for their outstanding contributions to standardization efforts. This year Air Force Materiel Command received both Air Force awards.



Mr. Zwitch

display across multiple DOD aircraft platforms.

The winner of the individual award was Mr. Robert Zwitch from Warner Robins Air Logistics Center, Robins Air Force Base, Ga., for his effort in providing a standard common large area



Lt. Col. Mahrer

The organizational award winner was the Engineering and Technical Management Specification and Standards Team. The team was led by Lt. Col. Dan Mahrer, from headquarters at Wright-Patterson AFB, Ohio, who was supported by members from nine AFMC centers. The team was recognized for their exemplary leadership and effort in executing the Air Force's military specification and standards initiative.

AFMC salutes 11 outstanding engineers and technical managers

Each year the Air Force Materiel Command director of Engineering and Technical Management, or E&TM, recognizes outstanding accomplishments of individuals and teams in the E&TM community.

The E&TM awards program is unique to AFMC and is the highest level of competition available for the nominees. A panel consisting of the command's highest-ranking engineers and technical managers evaluates the nomination packages.

This year the finest were recognized at an awards banquet and presentation ceremony on May 19 at Wright-Patterson

Air Force Base, Ohio. Gen. George T. Babbitt, commander Air Force Materiel Command, addressed the nominees and reiterated the importance of the engineering workforce.

Two of the awards, the General James Ferguson Engineering award and the General Bernard P. Randolph Engineering Team award, are sponsored by retired commanders of the former Air Force Systems Command. The Captain Roland R. Obenland Memorial Award, sponsored by the Obenland family, pays tribute to their son and brother who was killed in action in Vietnam.

The 1998 award recipients are:



Capt. Hill

Junior Engineer - Capt. Stephen Hill, chief, Global Air Traffic Control/Mobility C 2 SPO, Electronic Systems Center, Hanscom AFB, Mass.

Senior Engineer - Col. Daniel Pierre, director of operations, Arnold Engineering Development Center, Arnold AFB, Tenn.



Col. McCasland

Outstanding Chief Engineer - Col. William McCasland, SMC/CA, chief engineer, NAVSTAR Global Positioning System Joint Program Office, Space and Systems Missile Center, Los Angeles AFB, Calif.

Outstanding Technical Management-Individual - Capt. Brett Scott, deputy program manager, Advanced Systems Directorate, SMC, Los Angeles AFB, Calif.

Outstanding Technical Management-Team - team chief, Maj. Grant Carlson, Global Air Traffic Operations IPT, ESC, Hanscom AFB, Calif.



Mr. McClenahan

Outstanding Engineering Technician - Mr. Charles H. McClenahan, mechanical engineering technician, Munitions Directorate, Air Force Research Laboratory, Eglin AFB, Fla.



Col. Pierre



Capt. Scott



Mr. Akhbari

Outstanding Production, Manufacturing or Quality Assurance - Mr. Hamid Akhbari, manufacturing systems engineer, C-17 SPO, Aeronautical Systems Center, Wright-Patterson AFB, Ohio.

Career Achievement - Mr. Gary Bailey, radar systems engineer, Air Combat SPO, ASC, Wright-Patterson AFB, Ohio.



Mr. Bailey



Maj. Hackett

General James Ferguson Engineering - Maj. Ronald Hackett, electrical engineer, Directed Energy Directorate, AFRL, Kirtland AFB, N.M.

General Bernard P. Randolph Eng. Team - team chief, Mr. Daniel Wynn, Software Process Improvement Team, Software Engineering Division, Ogden Air Logistics Center, Hill AFB, Utah.



Mr. Wynn



Capt. Roberts

Captain Roland R. Obenland Memorial - Capt. Andrew Roberts, lead field support engineer, Propulsion Development System Office, ASC, Wright-Patterson AFB, Ohio.

— *Engineering and Technical Management Report*

